

PROGRAM II—RESEARCH AND PLANNING IN COMMUNICATIONS TECHNOLOGY

STATUTORY OR ADMINISTRATIVE AUTHORITY

The Communications Act of 1934, as amended; the Communications Satellite Act of 1962 and treaties and executive agreements to which the United States is a party.

NATURE OF PROGRAM AND BENEFITS

This program has a dual purpose—attempting to solve today's communication problems while preparing to deal with new problems which may confront us in the future. The program is divided into three areas:

1. *Spectrum planning and research.*—Includes studies aimed at optimum utilization of available spectrum space.

2. *Frequency management.*—Involves the equitable distribution of the radio spectrum to obtain optimum use with minimum interference. This is accomplished through international allocations and agreements effected by means of international conferences and meetings, such as the World Administrative Radio Conference (Geneva, 1967) to revise the Radio Regulations of the International Telecommunication Union applicable to the Maritime Mobile Services.

The responsibility for frequency management is shared at the national level between the President and the FCC. The President has delegated his authority, through the Office of Emergency Planning, to the Director of Telecommunications Management (DTM). Some frequency bands are designated for exclusive use by the Federal Government, others for exclusive use by FCC licensees, and a number of bands are shared. Elaborate procedures have been established to coordinate individual assignments where this is necessary to minimize the probability of harmful interference.

In addition, this phase of the program assumes responsibility for the maintenance of frequency assignment files. By means of these lists it is possible to estimate the degree of channel loading and to locate stations causing interference. These lists also provide information concerning compatibility of new frequency assignment requests with operations of existing stations. All assignments for which international recognition is desired or which are capable of causing international interference are notified to the International Frequency Registration Board in Geneva, which, after review as appropriate, arranges for international publication of the data.

Effective frequency management can provide the general public with improved police and fire protection, better communication and transportation services at lower prices, more efficient industrial processes and business services and the availability of a variety of broadcast services for everyone.

3. *Communications technology.*—Covers methodology, testing, and investigation of all phases of communications and equipment as well as spectrum and specialized studies. The ultimate test of this element is the benefits it brings to the public. With the increasing reliance on expanded communications—ranging from public safety to home entertainment—communications technology must answer the demands of a growing population and an expanding economy. Faced with this multiplicity of requirements, the Commission must apply and sometimes stimulate improved technology and more efficient concepts of spectrum utilization if the people are to be assured of communications geared to the needs of today's society.

Illustrative of studies conducted in this area are: Reducing channel width in the 450-470 MHz land mobile band to double the number of channels in that band; developing single sideband standards in the Marine Radio Service to reduce redundant information and increase the number of channels; and study of interference between space communications systems and microwave relay stations.

Also, a joint Government-industry group, directed by the FCC, is studying the feasibility of channel sharing of VHF-TV channels with the Land Mobile Radio Services. Field data now are being analyzed, and related laboratory tests under controlled conditions are in progress.

A recently completed staff study of the use of UHF-TV channels by the Land Mobile Radio Services will provide background for proposed rulemaking. The problem is one of balancing equities between the land mobile and broadcasting services.